



# UNITED STATES PATENT AND TRADEMARK OFFICE

*cen*  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,371	04/20/2004	Yasushi Yokomitsu	L8612.04111	3860
24257	7590	09/10/2007		
STEVENS DAVIS MILLER & MOSHER, LLP			EXAMINER	
1615 L STREET, NW			HARTMANN II, KENNETH R	
SUITE 850				
WASHINGTON, DC 20036			ART UNIT	PAPER NUMBER
			2616	
			MAIL DATE	DELIVERY MODE
			09/10/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/827,371

Applicant(s)

YOKOMITSU ET AL.

Examiner

Kenneth R. Hartmann

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/10/04</u> | 6) <input type="checkbox"/> Other: _____  |

**Detailed Action**

***Claim Objections***

1. Claim 6 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent must refer back in the alternative. See MPEP § 608.01(n).

Accordingly, the claim 6 not been further treated on the merits.

2. Claim 7 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend on another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim 7 has not been further treated on the merits.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 2 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. "Unoccupied time" seems to refer to the predetermined time in claim 1, since this time needs to be set at some point, whereas the "unoccupied time" of claim 1 is counted and variable.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 2616

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 6/1, 9 and 14/9 are rejected under 35 U.S.C. 102(e) as being anticipated by Asano (US 2003/0076830).

For claims 1 and 9, Asano discloses a repeater (Fig. 4) which passes on a communications packet between a first network and a second network (Fig. 1), the repeater comprising: a port mapping table (reference table, 42a) where an external port number on the first network is associated with an internal IP address and an internal port number of a terminal connected to the second network (in the reference table, data of at least one IP address and at least one TCP or UDP port number before translation by the network address translation (NAT) function and at least one IP address and at least one TCP or UDP port number after the translation by the NAT function are registered, see paragraph 119, lines 1-5), a controller, which receiving a communications packet to which the external port number is specified, converts the external port number to the internal port number based on the port mapping table and transfers the internal port number to the second network (NAT is performed by the comparison circuit and the reference table, and the CPU, 41, controls these operations within the router, see paragraph 120, lines 1-6), a timer, which counts an unoccupied time of a port after transfer of a communications packet with the internal port number to which is converted from the external port, and a port manager, which deletes the external port number in the port mapping table when the unoccupied time of the port has reached a predetermined time (CPU deletes registered port numbers and

addressed when a command is received, and a connection may be dynamically deleted from the reference table 42a by monitoring termination of the connection or time-out expiration, both of which require a timer and a port manager, see paragraph 121, 10-13).

For claims 6/1 and 14/9, Asano discloses a repeater as described above, wherein the port manager makes registration to the port mapping table based on a request made by the terminal connected to the second network (for dynamically registering, the first packet in communication through each connection is transmitted from one of the personal computers (12-1 to 12-3 and 14-1 to 14-3), see paragraph 120, lines 1-5 and Fig. 2).

### ***Claim Rejections - 35 USC § 103***

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 3 6/2, 6/3, 10, 11, 14/10, and 14/11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano (US 2003/0076830).

For claims 2 and 10, Asano discloses a repeater and method as disclosed above. Asano does not specifically disclose wherein the unoccupied time can be set by an access from a terminal connected to the second network. However, does disclose the use of flags sent from terminals in the second network to indicate when to stop a connection, thus causing a deletion of the addresses in the table (see paragraph 124). Therefore, it would have been obvious to one of ordinary skill in the art to modify the repeater and method (also noted in the international search report of the IDS) of Asano to transmit the setting for the unoccupied time rather than only the flag. The motivation for sending this rather than a flag to instantly disconnect the link would be allow the repeater to keep the address registered in the table for a certain amount of time, in case that terminal may unexpectedly need to use the connection again.

For claims 3 and 11, Asano discloses a repeater and method as disclosed above. Asano does not disclose wherein the port manager monitors the port open time, records the longest time and sets a time equal to or above the longest time as a threshold value of the unoccupied time. However, it would have been obvious to one of ordinary skill (also noted in the international search report of the IDS) in the art to set the expiration time-out value to a time greater than the amount that the port remains open. The motivation for using this value as the threshold value for the time-out expiration value would be to ensure that no connection is inadvertently disconnected ahead of schedule.

For claims 6/2, 6/3, 14/10, and 14/11, Asano discloses a repeater and method as disclosed above. Asano further discloses the repeater wherein the port manager makes registration to the port mapping table based on a request made by the terminal connected to the second network (for dynamically registering, the first packet in communication through each connection is transmitted from one of the personal computers (12-1 to 12-3 and 14-1 to 14-3), see paragraph 120, lines 1-5 and Fig. 2).

10. Claims 4, 5, 6/4, 6/5, 12, 13, 14/12 and 14/13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano (US 2003/0076830) in view of Okada (US 6,891,840).

For claims 4 and 12, Asano discloses a repeater (Fig. 4) which passes on a communications packet between a first network and a second network (Fig. 1), the repeater comprising: a port mapping table (reference table, 42a) where an external port number on the first network is associated with an internal IP address and an internal port number of a terminal connected to the second network (in the reference table, data of at least one IP address and at least one TCP or UDP port number before translation by the network address translation (NAT) function and at least one IP address and at least one TCP or UDP port number after the translation by the NAT function are registered, see paragraph 119, lines 1-5), a controller, which receiving a communications packet to which the external port number is specified, converts the external port number to the internal port number based on the port mapping table and transfers the internal port number to the second network (NAT is performed by the comparison circuit and the reference table, and the CPU, 41, controls these operations

within the router, see paragraph 120, lines 1-6), a timer, which counts an unoccupied time of a port after transfer of a communications packet with the internal port number to which is converted from the external port (timer is needed to measure for a timeout-expiration, see paragraph 121, line 13). Asano does not disclose a port manager, which, determining that a communications packet has not been received for a predetermined time, transmits a presence check packet to the terminal connected to the second network and which, receiving no response, deletes the external port number in the port mapping table. However, Okada does disclose the port manager determining that a communications packet has not been received for a predetermined time, transmits a presence check (check signal) packet to the terminal connected to the second network and which, receiving no response, deletes the external port number in the port mapping table (deleting portion deletes the combination of the source internet protocol address and the source media access control address from the destination information table when a response is not obtained by elapse of a predetermined time, see column 9, lines 42-56). Therefore, it would have been obvious to one of ordinary skill in the art to implement the port manager as taught by Okada into the repeater of Asano. The motivation for implementing this port manager would be to ensure that no connection is still required or desired by the external port, even though the predetermined unoccupied time has elapse and it is scheduled for deletion.

For claims 5 and 13, Asano discloses a repeater (Fig. 4) which passes on a communications packet between a first network and a second network (Fig. 1), the repeater comprising: a port mapping table (reference table, 42a) where an external port



number on the first network is associated with an internal IP address and an internal port number of a terminal connected to the second network (in the reference table, data of at least one IP address and at least one TCP or UDP port number before translation by the network address translation (NAT) function and at least one IP address and at least one TCP or UDP port number after the translation by the NAT function are registered, see paragraph 119, lines 1-5), a controller, which receiving a communications packet to which the external port number is specified, converts the external port number to the internal port number based on the port mapping table and transfers the internal port number to the second network (NAT is performed by the comparison circuit and the reference table, and the CPU, 41, controls these operations within the router, see paragraph 120, lines 1-6). Asano does not disclose a timer, which counts the time for periodically transmitting a presence check packet to the terminal connected to the second network, and a port manager, which transmits a presence check packet to the terminal connected to the second network at the time counted by the timer and which, receiving no response deletes the registration the external port number from the port mapping table. However, Okada does disclose a port manager, which transmits a presence check (address check signal) packet to the terminal connected to the second network at the time counted by the timer and which, receiving no response deletes the registration the external port number from the port mapping table (there would inherently be a timer for the schedule to send the address check signal and further to delete the combination of the source internet protocol address and the source media access control address from the destination information table when a

Art Unit: 2616

response is not obtained by elapse of a predetermined time, see column 9, lines 41-56). Therefore, it would have been obvious to one of ordinary skill in the art to implement the port manager as taught by Okada into the repeater of Asano. The motivation for implementing this port manager would be to ensure that no connection is still required or desired by the external port, even though the predetermined unoccupied time has elapse and it is scheduled for deletion.

For claims 6/4, 6/5, 14/12 and 14/13 Asano in view of Okada disclose the repeaters as disclosed above. Asano further discloses the repeater wherein the port manager makes registration to the port mapping table based on a request made by the terminal connected to the second network (for dynamically registering, the first packet in communication through each connection is transmitted from one of the personal computers (12-1 to 12-3 and 14-1 to 14-3), see paragraph 120, lines 1-5 and Fig. 2).

11. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz et al. (XP-002298367).

For claim 7, Asano discloses a repeater as disclosed above. Asano does not disclose wherein the repeater is a router, which performs dynamic port forwarding of an IP packet in accordance with the UPnP Standard. However, Schmitz et al. do disclose the repeater is a router, which performs dynamic port forwarding of an IP packet in accordance with the UPnP Standard. Therefore, it would have been obvious to one of ordinary skill in the art to use the repeater of Asano as a router as taught by Schmitz et al. The motivation for doing this would be to use a communication method that would

be common to many other routers and stations throughout the Internet and other networks.

12. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano in view of Koch et al. (Provisional 60/386129, parent case to US 2004/0042446).

For claim 8, Asano discloses a repeater (Fig. 4) which passes on a communications packet between a first network and a second network (Fig. 1), the repeater comprising: a port mapping table (reference table, 42a) where an external port number on the first network is associated with an internal IP address and an internal port number of a terminal connected to the second network (in the reference table, data of at least one IP address and at least one TCP or UDP port number before translation by the network address translation (NAT) function and at least one IP address and at least one TCP or UDP port number after the translation by the NAT function are registered, see paragraph 119, lines 1-5), a controller, which receiving a communications packet to which the external port number is specified, converts the external port number to the internal port number based on the port mapping table and transfers the internal port number to the second network (NAT is performed by the comparison circuit and the reference table, and the CPU, 41, controls these operations within the router, see paragraph 120, lines 1-6). Asano does not disclose a DHCP server section which checks whether to renew the lease on expiration of the DHCP lease period and receives a lease renewal request from the terminal, and a port manager which, receiving no lease renewal request from the terminal, deletes the external port number from the port mapping table. However, Koch et al. does disclose a

Art Unit: 2616

DHCP server section which checks whether to renew the lease on expiration of the DHCP lease period and receives a lease renewal request from the terminal, and a port manager which, receiving no lease renewal request from the terminal, deletes the external port number from the port mapping table (DHCP contains lease-time information that is monitored, if the client does not renew the address in the lease period, the administered IP address will be removed from the routing information maintained by the PON interface (port manager), see page 7, lines 20-30). Therefore, it would have been obvious to one of ordinary skill in the art to modify the repeater as taught by Asano with the repeater as taught by Koch et al. The motivation for this modification would be to allow IP addresses to be automatically assigned to the terminals by the DHCP, and if they are not used then allow them to be automatically deleted from the mapping table.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kong (US 2002/0024959) is cited to show is cited to show a network address conversion system. Tsuchiya et al. (US 2002/0024960) is cited to show an address conversion table for conversion between IP versions that deletes unused entries. Lo (US 7,167,923) is cited to show a system and method for deleting entries from an address table if a device does not send a packet from a predetermined time interval.

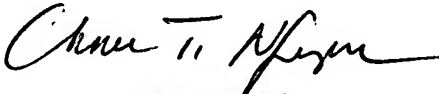
Art Unit: 2616

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth R. Hartmann whose telephone number is 571-270-1414. The examiner can normally be reached on Monday - Thursday, 10 - 3 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kenneth Hartmann  
AU 2616

  
CHAU NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600